I am strongly opposed to RM-11306 for the following reasons:

1. RM-11306 PROPOSES TO OVERTURN THE COMMISSION'S REPORT AND ORDER OF 1995, PR DOCKET 94-59.

PR Docket 94-59, adopted April 17, 1995, wisely, and necessarily, limited the use of automatically controlled digital stations with emitted bandwidths exceeding 500 Hz to only 3.8% of the HF spectrum allocated for ham radio use. Since the adoption of PR Docket 94-59, there has been no expansion of the HF spectrum allocated for amateur radio use, with the exception of a small, channelized, shared, 60 meter allocation. Therefore, there is no reason to undo what the Commissioner's decided in 1995 is a fair allocation of spectrum for automatically controlled digital station activities.

2. THE PETITION'S UNDERLYING INTENT IS TO MODIFY THE REGULATIONS TO ATTAIN FAVORED STATUS FOR A SMALL, SPECIAL INTEREST GROUP, WINLINK 2000, IN EXCHANGE FOR ARRL ACCESS TO THE WINLINK 2000 NETWORK FOR ARRL RADIO EMAIL MESSAGING USING THE AMATEUR BANDS.

Winlink 2000 (Winlink), provides Email messaging "services" for radio amateurs and third parties, using automatically controlled digital stations, as a free, quasi-commercial, alternative, on the radio amateur bands, to paid radio email services, such as Globe Wireless.

Email messaging "services" are not traditional two-way "communcations" in real time, such as the amateur bands have always been used for, but for "messaging" in delayed time, similar to leaving a message on a telephone answering machine. Since the adoption of PR Docket 94-59, for over 10 years, Email messaging has only interested a small group of FCC-licensed radio amateurs, comprising less than one percent of the FCC-licensed radio amateurs. These messaging services contribute nothing towards training operators in communications skills, since the messaging process is identical to Internet Email, and contribute nothing toward national or international goodwill, since there is no two-way exchange of ideas in real time.

There is no justification for establishing regulations, via the proposed rewrite of Part 97.221, that would give favored status to Email messaging services, such as the ARRL petition proposes to do. To do so would result in an unavoidable enormous increase in FCC enforcement activities, in the same manner as the inclusion of Subpart C of 97.221, which removed limits on automatically controlled digital stations with emitted bandwidths under 500 Hz, has resulted in historically high interference to normal radio amateur communications and should itself be rescinded.

For 10 years, Part 97.221 has contained wideband automatically controlled digital stations within narrow subbands in order to limit the historically high levels of distruptions that the automatic stations

cause to traditional communications. ARRL now proposes to increase that disruption by rewriting Part 97.221 to remove all restrictions on where automatic stations can be operated, under the patently false assumption that a live operator initiating the transmission of an automatically controlled digital station is able to prevent the automatic station from causing interference to communications local to the automatic station. It does not take a large leap in understanding to realize that any operator not within reception range of stations local to an automatic station cannot possibly know of their presence, nor prevent the automatic station from interfering with stations local to the automatically controlled digital station, but out of range of the station triggering the automatic station to transmit.

In addition, users of the automatically controlled digital station networks routinely abuse the regulations by simply transmitting on top of existing communications that are using modes other than the one it is using. This happens so often because operators of those stations employ a technique abbreviated as "ARQ", or Automatic Repeat reQuest, which means that once they start transmitting, they automatically repeat transmissions, even in the face of interference from stations already using the frequency, because they know their software has turned their operator-controlled station into an automatic station which will keep trying to dominate the frequency as long as possible until they successfully pass the intended data. Because human operators do not have the unlimited patience of the automatically controlled digital stations, the battle for the frequency is always won by the automatically controlled digital stations, usually by causing the human operators on the frequency to eventually completly lose contact with their other party, resulting in the ability to dominate any frequency desired by the automatically controlled stations at will.

ARRL states, "It should suffice for interference avoidance purposes generally to require, as does the current Section 97.221(~)(1), that stations under automatic control (outside the specific segments where automatically controlled stations can operate without this limitation) not initiate communications without interrogation by a station under local or remote control. Therefore, it is proposed to modify Section 97.221 (c) to delete the limitations on semi-automatic control and to permit the same throughout the amateur HF bands. Residual risk of interference from this station (or network) configuration can best be managed by the Amateur community through a combination of technology (including further development of listen-before-transmit protocols) and respectful operating practices (which are already necessitated and practiced by radio amateurs)".

Nothing could be further from the truth! For 10 years, the Amateur community has been unable to develop any reliable means of reducing this residual risk of interference, or any reliable technologies to do so, resulting in historically high levels of interference to communications by automatically controlled digital stations, either the station initiating the transmission of the automatically controlled digital station, or the automatically controlled digital station itself. To presume it will happen in the future provides no basis for elimination or modification of regulations in Part 97.221, instituted in 1995 by the Commission to restrict the interference potential of automatically controlled digital stations.

3. THERE IS NO COMPELLING REASON TO REWRITE SECTION 97.221 IN ORDER TO INCREASE THE AVAILABLE SPECTRUM WHERE AUTOMATICALLY CONTROLLED DIGITAL STATIONS WITH EMITTED BANDWIDTHS OVER 500 HZ CAN BE OPERATED.

The only known, or even predicted, use of automatically controlled digital stations on HF is for automatic Email transfers to and from the Internet. This use is not for "communications" in real time, but for "messaging" in delayed time, using the amateur radio frequencies as sort of an answering machine for Email destined for the Internet.

Because "messaging" is not accomplished in real time, very little spectrum is required to handle multiple "messaging" stations, because multiple stations can share a frequency just by taking turns to use it. The current subbands established by Section 97.221 are sufficiently large enough to accomodate all known or forecast "messaging" activity simply by requiring "messaging" stations to share frequencies, instead of each dominating a multiplicity of frequencies as they currently do.

For example, the average current Email handled by Winlink 2000 is 3800 characters in size, and takes about 4 minutes to transfer on a single frequency. Instead of each automatically controlled digital station using a different frequency, if two stations shared a single frequency, and one of the stations was using the frequency, then the other station would only have to wait a maximum of 4 minutes to use the frequency. That would be a maximum wait of 4 minutes. In actual use, the wait time would vary from zero to 4 minutes, depending upon the network traffic demand. Sharing frequencies dramatically reduces the amount of spectrum needed for "messaging", with little effect on message receipt time.

Since Email is not transferred in real time, but in delayed time, Emails sent are usually not retrieved for many minutes or hours after they have been sent, because the recipient has to first decide to check for Email, then establish a reliable connection, and then execute the transfer, a process which typically takes a minimum of 15 minutes. Email over the amateur radio frequencies is not like Email over broadband, where one is always connected, but more like a dialup Email service where it is necessary to wait for a connection. The impact of not always being connected is that there is no urgency to use wider bandwidths or individual frequencies for each "messaging" station in order to speed Email transfers, because the recipient will not receive the Email significantly faster because of the connection time expended, and the time that elapses while deciding to check for Email.

By sharing frequencies among multiple Email "messaging" stations, the spectrum already provided by Section 97.221 is more than adequate to handle all current and projected Email "messaging" needs of the radio amateur community, and does not have to be modified as RM-11306 proposes.

4. RM-11306 IGNORES THE FACT THAT HF AMATEUR RADIO SIGNALS TRAVEL WORLDWIDE.

RM-11306 totally disregards all restrictions on "store-and-forward" messaging services or automatically controlled digital stations of all kinds ("known in IARU Region 1 as digimode stations") that are part and parcel of the published IARU Region 1 bandplan.

5. RM-11306 PROPOSES TO ESTABLISH LIMITATIONS ON EMITTED BANDWIDTH, EVEN THOUGH SUCH LIMITATIONS WERE DENIED BY THE COMMISSIONERS ON NOVEMBER 24, 2004 (DA-04-3661).

The ARRL petition proposes to establish limitations on necessary bandwidths of 3.5 kHz, thereby hindering experimenting with future modes of operation of wider bandwidth. The problems of such limitations are disclosed within the petition itself, in that exceptions are made for "legacy" modes, such as double sideband amplitude modulation, but makes no provision for modes to be developed that might benefit from using a necessary bandwidth greater than 3.5 kHz.

It is inconsistent with the ARRL claim that RM-11306 replaces regulation by mode with regulation by bandwidth, when the petition itself is fraught with restrictions by mode, such as the exception for DSB AM. It can be anticipated that other useful modes might be developed in the future, but would not be able to be used, because of restrictions on bandwidth.

6. AN ADDITIONAL UNDERLYING INTENT OF RM-11306 IS TO REMOVE REGULATIONS AND REPLACE THEM WITH ARRL BANDPLANS.

RM-11306 is merely another poorly veiled attempt by ARRL to transfer control of how and where radio amateurs may operate from FCC regulations into the hands of a few, select members of the ARRL Executive Committee, thereby depriving the average radio amateur of his current right to due process and public comment period before any proposed regulation becomes law.

On April 3, 1998, the ARRL filed a Request for Declaratory Ruling, RM-9259, in an attempt to have deviations from ARRL bandplans declared to be in violation of Part 97 regulations. Although this request has already been once denied by the Commissioners, ARRL is now trying again to gain control over radio amateurs in yet another way via this petition.

Under this petition, ARRL cannot be trusted to fairly consider and publish the wishes of the radio amateur community, as exemplified by the ARRL request for comments on the petition to be emailed to bandwidth@arrl.org, and then totally ignoring all requests to tally and publish the results of the comment solicitation, the only result being a statement by ARRL CEO, Dave Sumner, K1ZZ, that there is "significant support" for the ARRL petition, never disclosing what "significant support" entails,

or the number of comments pro and con for the petition.

ARRL represents only 21% of the FCC-licensed radio amateurs, so there is no compelling reason why any bandplan from ARRL should be given precedence over any other, or over any FCC regulations that currently bring order and fairness to amateur radio and prevent chaos. The mere fact that RM-11306 conveniently omits all restrictions on automatically controlled digital stations that IRAU Region 1 finds necessary, is testament to the fact that ARRL does not fairly represent the majority of radio amateurs and cannot be trusted to institute a bandplan that is fair to all radio amateurs, and not mainly for ARRL's favored special interest groups.

7. HIGH-SPEED DATA OR MULTIMEDIA ON HF, TOUTED BY ARRL, IS JUST NOT FEASIBLE.

While the ARRL petiton contends that high-speed multimedia and data transfer on the HF bands is the wave of the future, actual practice shows that high-speed multimedia on HF is nothing more than a pipe-dream, and that the HF bands are simply unsuitable mechanisms for high-speed data transfer.

The most advanced HF data transfer mode currently available is Pactor-III, in daily use for over 92% of Winlink Email transfers, and utilizing a maximum bandwidth of 2400 Hz when run at highest speed. Pactor-III is capable of a speed of 225 characters per second over a wired network, but, according to the statistics available at http://winlink.org/status, only achieves an average speed of 15 characters per second on HF circuits. The Pactor-II mode, requiring a lower bandwidth of 450 Hz, also used daily by Winlink, achieves an average speed on HF circuits of only 10 characters per second, compared to a speed of 50 characters per second on a wired circuit.

In other words, there is a greatly diminishing speed advantage on HF circuits as the signal bandwidth is increased, such that Pactor-III requires a channel bandwidth of 2400 Hz for only a 50% speed gain over Pactor-II (which requires a channel bandwidth only one fifth that of Pactor-III). There simply is not enough spectrum on the amateur bands to support such bandwidth-wasteful attempts to gain increased speed for data transmissions at the expense of space for traditional communications. The main limiting factors on HF that prevent high-speed data transfer are fading, noise, and interference, requiring too many necessary repeats of data blocks in order to achieve the error-free transfer needed for data transfer, and severly limiting the achievable speed of data transfer on HF in actual practice.

Even the best engineering to date has been unable to achieve high-speed error-free data or multimedia transfer on HF, and therefore the premises of RM-11306 that, "It is now necessary to permit higher data rates, in order to permit the development of digital multimedia technology, which is now coming into use in the Amateur Radio Service, and which has great promise for improving and

fostering more effective emergency and disaster relief communications" is unquestionably false and misleading.

The current Part 97 regulations limit the symbol rate to 300 baud on the HF bands, and recently it has been shown conclusively shown that higher baudrates are counterproductive, because lower baud rates are necessary for high sensitivity and multi-path rejection. Therefore, there is no overriding need to eliminate the 300 baud limitation on symbol rate, as the ARRL proposes.

Accepting RM-11306 as written would be seriously damaging to communications in the Amateur Radio Service and should be denied.

Respectfully,

Howard Teller (dissenting member of the ARRL Ad Hoc HFDigital Committee referenced in RM-11306)

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